DOCUMENT RESUME

ED 231 697 SO 014 720

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TITLE Women's Formal Education and Economic Growth: The Case of the Philippines.
PUB DATE Oct 82
NOTE 23p.; Paper presented at the National Conference on the Third World (5th, Omaha, NE, October, 1982). Print marginally legible.
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150) -- Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Comparative Analysis; Economic Development; *Economic Progress; Educational Attainment; *Education Work Relationship; Employed Women; Family Role; Foreign Countries; *Human Capital; Professional Occupations; Sex Role; Social Science Research; *Womens Education
IDENTIFIERS *Philippines

ABSTRACT

Research indicates that the education of Philippine women pays off in the economic growth of the country. Previous research which examined women's contribution to national income in six countries indicated that levels of educational attainment and levels of per capita national income were positively or moderately associated in five of the countries (the United States Japan, Sweden, Colombia, and Egypt). In the Philippines, however, where women had a higher educational attainment than in the other five countries, the economic development of the country was relatively low. The present research determined that the Philippines should be compared with countries with similar levels of per capita income. Therefore, a 35-country survey was undertaken using the same hypothesis as the previous research. Results illustrate that Philippine women's education is at least moderately associated with the country's growth indicators. Philippine women comprise a large portion of educational enrollment, labor force participation, and occupational distribution. In 1980, women represented 22 percent of the workers in the highest paying educational sector and 60 percent in the second highest paying sector. Women outnumber men in professional, technical, and related jobs within the civil service. Factors which contribute to the high visibility of women include influence from the U.S., the original high status of Philippine women, egalitarian family structure, and role freedom. (KC)

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WOMEN'S FORMAL EDUCATION AND ECONOMIC GROWTH: THE CASE OF THE PHILIPPINES

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Paper presented at the National Conference on the Third World (5th, Omaha, NE, October, 1982).

SO 014 720

ABSTRACT

The economic growth of a country occurs because of an increase in the supply of productive factors, land, labor, and capital, or when there is technological advance. An increase in human capital is brought about, in the main, by an investment in the education of people who use their education in the market sector of the eocnomy. The investment in education,according to human capital theory, will ultimately lead to an increase in personal income.

Previous research tested the validity of human capital theory as it speaks to a key issue in the economic development of a country, economic growth as indicated and measured by real per capita national income. Using the educational attainment levels of aggregates of females and examining economic growth levels in three less developed countries (the U.S., Japan, and Sweden), the extent to which these women's formal education and labor force careers pay off in terms of economic growth was demonstrated.

It was discovered that the Philippines has relatively high adult literacy and females, particularly, have a high educational level, higher than that of females in the sample countries. But the level of economic development of the country is relatively low. We, however, compare aggregates of females in the Philippines with those in other countries with income levels similar to that of the Philippines. We show the extent to which Philippine female's education is important by showing that their education has contributed to the economic growth of the country. We explain this contribution in terms of selected social and economic characteristics of the country's institutional forms.

WOMEN'S FORMAL EDUCATION AND ECONOMIC GROWTH: THE CASE OF THE PHILIPPINES

LouEllen Crawford and Nancy L. Sidener

Research Objectives

The objective of this research is to determine whether or not Philippine female's education significantlly affects with the country's economic growth indicators and, if so, the extent to which it does. The theoretical underpinnings of this research are those of human capital theory and economic growth theory. Explanations for females' educational attainment level and their labor force activities are sought.

Statement of the Problem

In a thesis examining women's contribution to national income *vis-a-vis* education in six countries, one of the authors sought to test the validity of human capital theory as indicated by the strength of association between females' educational attainment and countries' levels of national income. Human capital theory held up quite well when data on the U.S., Japan, Sweden, Colombia, and Egypt were analyzed; it did quite poorly when data on Philippine females were analyzed. That is, the levels of female educational attainment and levels of per capita national income were positively and at least moderately associated in the five countries; this was not the case with the Phillippines, however. Therefore, it was determined that the relationship between females' education and growth indicators other than per capita national income needs to be examined and the strength of this relationship needs to be compared with that in countries

with similar levels of per capita incmoe, that is, middle income countries. The research questions become: Are Phillippine females' education and labor force activities covary hassociated with other important growth factors? If so, is the strength of this association of these variables the same as it is in other middle income countries? To what extent does women's education explain economic growth?

Previous Research

In order for there to be an understanding of the goal of the present research, a review of the hypothesis, conceptual scheme and variables dealt with in the prevous research is called for. The hypothesis was this: Since, on the average, there is differential access to education between males and females, males tend to assume occupations which are different from the ones females tend to assume. Therefore, there is a difference between males' and females' earnings.

The basic concepts dealt with were: educational attainment level, operationalized by examining enrollment ratios at the three education levels; the sex composition of occupational categories (operationalized by examining the sex ratio of the broad occupational categories defined by Treiman (1977); and real per capita national income level. Wage levels by occupational categories were examined also. Taubman and Wales (1974) provided an excellent display of this relationship and how it covaries with educational levels. Table 1 illustrates this, as well as prestige scores provided by Treiman.

The two propositions suggested by the research hypothesis

TABLE 1

Average Annual Earnings by Type of Occupation and Education Level, U.S., 1969

Occupational Prestige Score*	Occupation	Education					
		High School	Some College	College Degree	Graduate Work	M.A.	Ph.D.
64	Managers	$19,356	$20,496	$21,792	$21,516	$22,476	$23,532
58	Professions	14,856	15,888	17,796	15,780	16,392	20,208
	Technical	15,840	16,872	18,780	16,764	...	...
41	White Collar	9,528	9,912	10,116	10,884	...	...
40	Sales	15,708	16,740	18,648	16,632	...	...
	Blue Collar	10,764	11,148	11,904	12,672	...	...
27	Service	10,212	10,596	11,352	12,120	...	...

*Broad Occupational categories have been assigned prestige ratings by Treiman (1977); prestige ratings refer to earnings, for the most part.

SOURCE: Taubman and Wales (1974).

were as follows: 1) The higher the educational attainment level, the more prestigious the occupation assumed. 2) The higher the educational attainment level, the higher the earnings commanded in the labor force. The assumption made from these propositions is that a country which has a highly educated population is a country with a relatively high level of economic development as measured by real per capita national income. It was assumed,

therefore, that if human capital theory is valid, formal education would be directly and significantly associated with countries' per capita national incomes and it would do so consistently across any group of countries regardless of levels of economic development. This was not the case, however, with the Phillippines.

Theoretical Perspectives: Economic Growth and Human Capital Theories

Economic growth occurs when a country experiences an increase in the supply of productive factors, land, labor, and capital, or when there is technological advance. Growth of per capita income results from increases of the capital stock, termed investment, outpacing increases of the labor supply.

One of the most widely accepted theories of economic growth, developed by Harrod (1948) and Domar (1957), holds that the rate of growth of a country is determined by the fraction of a country's total income going into savings and investment, and by the capital-output ratio. Changes in the latter can be brought about by technological advance.

Investment can take two forms: increases in the physical capital stock and increases in the stock of human capital brought about by education.

Human capital is represented by all those resources of human beings which can be called upon to upgrade the quality of both physical and cultural life of the human species (Higgins 1968: 23). The amount of human capital available in a country can be measured by education enrollment at the three levels of educa-

tion: primary, secondary, and post-secondary. Human capital theory holds that education is investment in "new" or human capital and this investment causes a change in the quality of the human factor of production. New techniques and ideas "flow from" education leading to the embodiment of education in labor as it is applied to physical and social capital. Increased education enhances the likelihood of labor force participation and the skill levels of workers which, in turn, increase output per worker. These increases are reflected in personal earning increases and these, in turn, increase national income per capita. This growth of personal and national income is, thus, brought about by education, that is, human captial investment.

Economic growth is subsumed under the economic development of a country. The reason for this is that economic developemnt is the result of many factors, growth of real per capita national income being one of them. For example, there is lack of development or less development if a country has not implememted a fairly equal distribution of material welfare, has failed to increase significantly the incomes of the lowest-income families, to improve the health level of its population, or failed to decrease infant mortality. Clark (1979) avers that coutnries seeking to develop should consider ecudation as a change mechanism, since education brings about an improvement in personal income and this change, in turn, eventually changes the human condition, which includes improving nutrition, health, and decreasing birth rates.

Berg (1970:24) suggests that "the statistical association between education investments and growth rates provides sharp

presumptive evidence that the educational achievements of a nation's work force is a significant factor in improving the 'quality' of labor as a factor of production." He suggests that productivity or output is the "embodiment" of educational achievement and tends to vary directly by labor skill resulting from education. He continues by arguing that productivity embodied in output can be linked directly to earnings by using education as an independent variable. This argument is valid in light of the fact that the income of specific population groups can be differentiated by educational groupings. Berg holds this finding is indicative that growth rates vary directly by the quality of a nation's work force, since increasing income is a prime indicator of growth and development.

One of the factors responsible for long-term growth and variation in the growth rate identified by Denison (1974) is the formal education of employed persons. He accounts for economic growth in the U.S. by noting the lengthier education of the labor force which has resulted in the growth of output per worker. "A sharp shift in the educational background of the American worker has upgraded the skills and versatility of labor and contributed to the rise in national income," notes Denison (1974:43).

Although Berry and Sabot (1979) maintain they cannot estimate in economic terms how much the education process increases worker productivity, they offer that the average percent increase in earnings associated with one or more years of schooling is a measure of the portion of earnings that result from education. Harbison and Myers (1963) calculate that, between 1929 and 1957, 23% of the amount of growth of national income per perosn em-

ployed could be accounted for by a 2% increase in the amount of education an average worker had received. Schultz's (1967) estimate is similar: In the same period, education appeared to account for at least one-fifth of the increase in U.S. national income.

Another theoretical perspective driving previous research is what one of the authors entitled the "socioeconomic determinism" perspective (Crawford, 1982). This orientation holds that, in the case of women's formal education, there are certain practices found in societies' institutional forms, e.g., educational systems and labor markets, which act directly and indirectly to affect females' educational and labor force participation activities.

Factors found in education systems are the presence of sex-biased texts and counseling emphases, unequal access to education, and the sex-stereotyping of academic disciplines. Labor market practices used by many as typical explanations for females' contribution to per capita national income and economic growth are made in terms of disparate earnings between male and female occupational incumbents, the existence of a dual labor market[1], occupational crowding, and the sex-typing of occupations (see, for example, Adelman and Morris 1973, Berg 1981, Gordon 1974, Ferber and McMahon 1979, and Thurow 1975).

It has been discovered, furthermore, that these practices

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[1] A dual labor market is characterized by two sectors: a primary sector in which wages, working conditions and the like are favorable, and a secondary sector in which wages, etc. are relatively unfavorable. Females tend to cluster in jobs in the secondary sector and are, therefore, at a disadvantage.

function for females in ways that are differnt from the ways they function for males. Since these practices affect educational and labor force activities and because they affect females' status in the social stratification system, they also affect women's contribution to economic growth of a country.

The Research Hypotheses

From the theories of economic growth, human capital, and socioeconomic determinism, we build a series of hypothses that suggest the importance of educating women.

> Economic growth and the investment in both physical and human capital are correlates in the same conceptual scheme.
>
> The education of women is not inconsequential in spurring economic growth since their education pays off in terms of certain economic indicators.

To test these hypotheses, we first use ordinary least squares regression analysis on the data pertaining to physical and human capital investment, and the growth of national income and the level of per capita income. Our sample is composed of thirty-five middle income countries, including the Philippines and excluding oil exporting countries. The latter are excluded on the grounds that recent inflows of funds have set these countries apart from their less well-endowed fellows.

Table 2 summarizes our findings. We find that domestic investment is the crucially important explanatory variable for economic growth from 1970 to 1979. We cannot reject the notion that education is also a significant factor in economic growth.

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TABLE 2

Effects of Education on Income

Variables	Constant	B1 or B2	t	R^2	R^2 Change	R^2	F
Gross Domestic Product, av. ann. % growth, 1970-1979, with							
Gross Domestic Investment, 1960-1970	1.96	.18	4.03	.34			
Gross Domestic Investment, 1970-1979		.28	6.94	.76	.42	.74	43.58
Gross Domestic Product, av. ann. % growth, 1960-1970, with							
Total Primary Enrollment, 1960	4.52	.02	1.30	.05	...	.02	...
Female Primary Enrollment, 1960	4.96	.01	1.11	.04	...	.01	...
Gross Domestic Product, av. ann. % growth, 1970-1979, with							
Total Primary Enrollment, 1960	2.57	.03	1.78	.09	...	.06	...
Female Primary Enrollment, 1960	3.57	.02	1.32	.05	...	.02	...
Gross National Product per capita, 1979, with							
Total Primary Enrollment, 1960	-824.02	30.95	5.05	.46	...	.45	...
Female Primary Enrollment, 1960	-274.84	25.08	4.41	.40	...	.38	...
Total Primary Enrollment, 1960	-414.69	19.80	1.92	.47			
Total secondary Enrollment, 1960		24.29	1.32	.50	.03	.42	13.94
Female Primary Enrollment, 1960	-184.57	16.92	2.11	.43			
Female Secondary Enrollment, mid-1970s		11.76	1.22	.46	.03	.42	12.04

NOTE: Degrees of freedom are 38. Critical values of t are 1.31 for 10%, 1.70 for 5%, 2.04 for 2.5%, 2.46 for 1%, and 2.75 for 0.5% levels of significance, respectively.
The F statistic tests the hypothesis that B1 = B2 = 0. The critical value of F at the 1% level of significance is 5.39.

SOURCE OF DATA: International Bank for Reconstruction and Development. World Development Report, Oxford University Press, 1981.

It appears, however, that primary education more strongly affects GNP per capita than does secondary enrollment, as evidenced by the R-square and changes in R-square pertaining to the relationship between GNP per capita and total education enrollment. Female primary enrollment may exert a greater influence on GNP per capita than does male primary enrollment, judging from the t statistics of female and total enrollment.

The scattergram of Figure 1 depicts coordinates of average annual growth rates of Gross Domestic Product, 1970 to 1979, and female primary enrollment in 1960. It gives graphic evidence of the relationship between women's primary education and growth rates in middle income countries.

The Case of the Philippines

The location of the coordinate on the scattergram representing the case of the Philippines, as well as the significance level of the explained variance in the regression analysis all serve to demonstrate that the case of the Philippines lends support to the research hypotheses.

We can surmise, then, that Philippine females' education is at least moderately associated with the country's growth indicators. When we examine growth indicators and females' education enrollment for the country, we observe that our assumptions have been substantiated. In the 1960 to 1970 period, the annual rate of growth of the ocuntry's GDP was 5.1%; for the 1970 to 1979 period, it was 6.2%. The country has a record of a significant annual growth rate in its gross domestic investment as well; 8.2% in the 1960s and 10.6% in the 1970s. Furthermore, the

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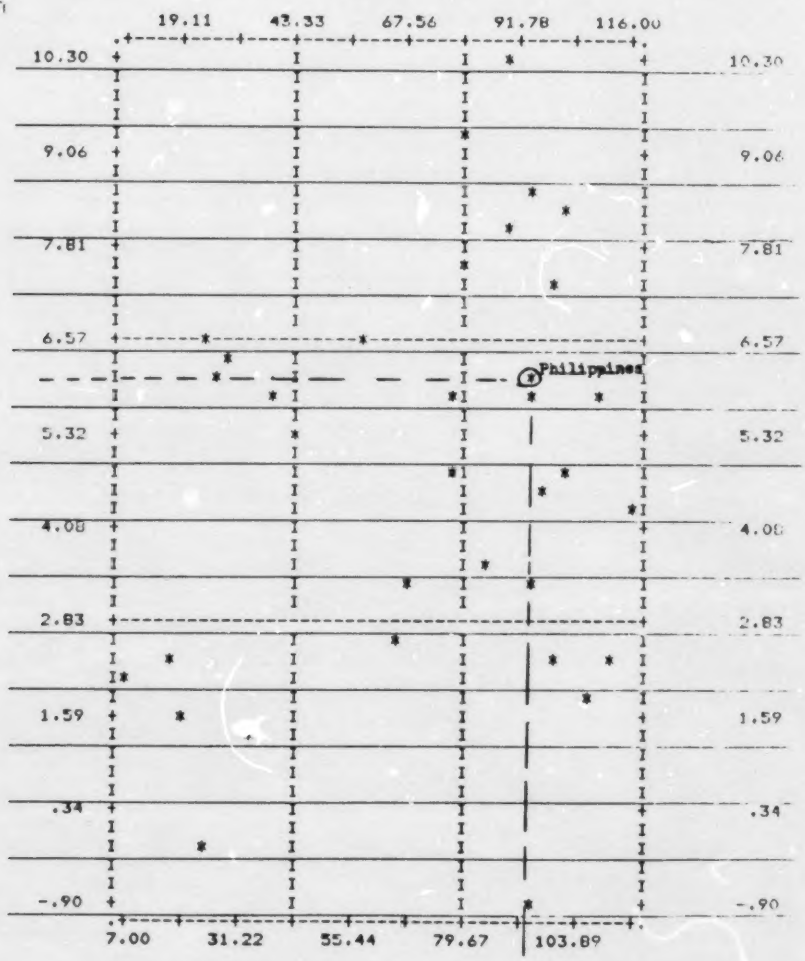
FIGURE 1

Average Annual Growth Rate, 1970-1979,

and Female Primary Enrollment, 1960,

Thirty-five Middle Income Countries



SOURCE OF DATA: International Bank for Reconstruction and Development. The World Bank. World Development Report. Washington, D.C.: Oxford University Press, 1981.

country's national income nearly doubled between 1975 and 1979.

A notably unique configuration of Philippine females' educational level of attainment, labor force participation rate and occupational distribution infers their high social and economic status. With regard to their educational enrollment, they represent a large proportion of the enrollment over all three levels and time periods. This, in spite of the fact that the Philippines is a less developed country. Tables 3 and 4 summarize information on education in the Philippines. Boserup (1970) reports that, in 1968, 44% of all students over 15 years of age in all educational institutions were females. In fact, the Philippines was the only Asian country fo have nearly as many females as males who were students at this time.

The occupational distribution of Philippine females is also of interest. In 1980, they represented nearly 22% of the

TABLE 3

Philippine Female Enrollment

as Percent of Total Enrollment

Education Level	1970	1975	1978
Primary	42	49	51
Secondary	50	50	51
Post-secondary	55.6	57.1	59.3

SOURCE: United Nations, Compendium of Social Statistics, 1972, 1974, 1980.

TABLE 4

Net Enrollment Ratios within

Age Cohorts by Sex, 1975

Age Cohort	Male	Female
6 to 11 years old	76.4	80.0
12 to 17 years old	63.2	65.0
18 to 23 years old	43.1	24.1

SOURCE: United Nations, Compendium of Social Statistics, 1975.

workers in the highest paying occupational sector, the managerial and administrative sector. In the same year, U.S. women represented 24 % of the workers in that sector and Japanese women, only 5.7%. Philippine women represented 60% of the workers in the second highest paying sector, while U.S. women represented 43% and Japanese women, a little over 45%. Philippine women workers are found holding positions in government bureaucracies, they outnumber men in the professional, technical, and related jobs within the civil service structure. They are corporate executives in family corporations; they are real estate agents, stockbrokers, pharmacists, chemists, technicians in industrial laboratories, lawyers, optometrists and physicians. Table 5 summarizes the role of women in the labor market over time. Ward (1963) reports that a high proportion of those taking and passing professional and governmental exams in the early 1960s was women.

Green (1976) comments on Philippine women's remarkable record in the public sector:

"...women hold important positions in the government

TABLE 5

Percent Philippine Female Workers

in Occupational Categories

Occupational Category	ISCO Rating*	1950	1955	1960	1965	1975	1980
Managers, Administrators	64	9.2	11.3	14.4	15.2	22.7	19.5
Professional, Technical, and Related Fields	58	46.8	48.9	51.0	52.7	59.6	60.8
Clerical and Related Fields	41	14.6	17.1	22.9	26.3	47.4	50.7
Sales and Related Fields	40	43.0	48.2	50.6	59.9	56.5	...
Production Workers	32	45.6	43.2	42.0	40.7	26.9	...
Service Workers	27	68.1	68.0	66.0	64.0	63.4	63.0

*International Standardized Classification of Occupations, Treiman (1977)

SOURCE OF DATA: International Labor Office, Yearbook of Labor Statistics, 1951, 1955, 1961, 1966, 1976, 1981.

bureaucracy as well as in the secretarila pools. Teachers at all levels of education including higher education are mostly women... In public markets most vendors are women. The executive offices of family-owner corporations are occupied by women, and on the financial pages of the Manila newspapers there appear to be as many females' names and pictures as those of males. In hospitals, pharmacies, industrial laboratories or in any occupation requiring an advanced degree, women are very well represented... Law, once dominated by males, has increasingly become a female domain. Current bar examination figures indicate that the majority of those who pass the bar exam are now women and each year they have come closer to 'topping the bar.'"

All of these data, pieces of information, and statistical

analyses seem to lend support to the contention that, when we compare this contribution to that made by women in thirty-five other middle income countries, Philippine females' education and performance in the labor force have contributed not insignificantly to economic growth.

Accounting for Philippine women's contribution to economic growth has been the subject of much literary attention. Much of the literature infers that the female's position in the social stratification system in the Philippines was elevated considerably at the time of World War II, when females found themselves working alongside men or replacing men in the labor force. Women's labor force participation rate right after the war, 1945, was only slightly lower than U.S. women's participation rate. Thirty-two percent of the Philippine labor force was women; thirty-six percent of the U.S. labor force was women. Philippine females' representation in the work force has continued to increase steadily since the war, whereas U.S. women's representation after the war decreased for a while before it began increasing.

Another explanation given for Philippine women's high status refers to the fifty year domination by the U.S. This domination brought a rationalized education system to the country, a system which gives equal educational opportunities to both sexes, among other things. It brought about an institutionalized mode of government which was democratic in character. Under Colonial rule, the polity became rationalized, the Protestant work ethic was adopted, and the education system was Americanized to the point where it was replete with "the English language, snow

scenes at Christmas and the liberal democratic credo," remarks Green (1976).

Dualism within the professional occupational category does exist, but it favors women. For example, in 1975, 78% of the teachers at the primary level were women, 67% at the secondary level were women, and nearly 50% at the higher level were women. In the late 1960s, according to Matthiasson (1976), 21% of all personnel in administrative positions were women.

Clark (1979) maintains that, even centuries before the Spanish came to the Philippines, the status of the female was high, and that Spanish domination, although having the effect of "neutralizing" some of the rights females held, did little to destroy the strong underpinnings of status equality between the sexes. Myth holds that the first woman sprang from the same cylinder of a banboo shoot as man and at the same time. At the time of Spanish conquest, the woman was "practically the head of the household," making contracts and business arrangements without consulting the husband, independently administering her dowry, and managing property owned before marriage. These patterns of sex equality exist today, with the Filipino family being more supportive than authoritarian. The relationship between husband and wife is typically egalitarian, according to Clark.

Green (1976), Tinker (1975), and others account for Philippine women's level of educational attainment by pointing to the effects of U.S. domination, to the horizontal, multi-stranded egalitarian extended family structure, to the perceptions of future occupational activities and status open to women, and to what Tinker identifies as the country's "faith" in women's abili-

ty to learn and earn.

Another factor influencing women's status in the Philippines is attitudes toward women working. Myrdal (Matthiason 1974) informs us that prejudice against women working is usually less pronounced and less debilitating for women in the Philippines than it is in other Southeast Asian counties. These attitudes are partly a function of the structure of the family unit, according to Myrdal. In the family, a wide network of horizontal, multi-stranded dyadic relationships, exchange relationships, according to Green, constrains the acquisition of power and economic resources and tends to widely disburse decision-making roles between the sexes. The Philippine family provides support for all its members and underwrites, at least theoretically, upward mobility for its members. The family structure can be labeled neither patriarchal or matriarchal, but is bilateral, and patron-client kinship network-oriented. These kinds of family relationships, according to Green, have greater stability than vertical ones because they allow egalitarian bargaining processes which provide balanced rewards to both partners. This particular system, moreover, translates into a system of legal rights whereby inheritance is through both the father and the mother, and whereby married women can enter into legal contracts independently of their husbands.

Ward (1965) points to Philippine women's emancipation -- the holding of the franchise, the holding of office, ability to engage in activities outside the home capably, and their level of political awareness -- as the results of four factors: 1) The common modern factor includes the implementation of modern

medical measures, better communication, urbanization, new economic opportunity, and modern education. 2) An increasing degree of role freedom provided by the traditional family form has been effective. 3) Women's participation in the anti-Colonial struggle has given their role behavior legitimization. 4) There has been an increasing tolerance of the change taking place in the dominant religion.

Conclusions

We have argued that human capital is formed through the educational process and is a correlate of investment in physical capital and other selected economic growth indicators. It was empirically demonstrated that females' educational attainment levels in thirty-five countries covary with selected indicators and because it covaries, is not inconsequential in spurring economic growth. The education of women leading to participation in the labor force in high paying occupations is education that pays off in terms of increases in national income per capita, among other things.

As women begin to enter the labor force and as societal barriers to their participation are lowered, we would expect their contribution to economic growth to be at least as great as that of males, especially during the time that a country experiences relatively rapid growth. However, because of the principle of diminishing returns, as more and more women take their place beside men in the work force, the amount of their contribution to growth should fall to the level of males' contribution.

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